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10/542,552	07/18/2005	Yitzhak Weissman	29811	7035
7590 02/20/2008 Martin Moynihan Anthony Castorina Suite 207 2001 Jefferson Davis Highway Arlington, VA 22202			EXAMINER	
			RAINEY, ROBERT R	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)			
Office Action Summary		10/542,552	 WEISSMAN, YITZHAK			
		Examiner	Art Unit			
		Robert R. Rainey	2629			
	The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply					
A SHO WHIC - Exten after 9 - If NO - Failur Any re	DRTENED STATUTORY PERIOD FOR REPLY HEVER IS LONGER, FROM THE MAILING DA sions of time may be available under the provisions of 37 CFR 1.13 SIX (6) MONTHS from the mailing date of this communication. period for reply is specified above, the maximum statutory period we to reply within the set or extended period for reply will, by statute, apply received by the Office later than three months after the mailing d patent term adjustment. See 37 CFR 1.704(b).	ATE OF THIS COMMUNICATION 36(a). In no event, however, may a reply be tin will apply and will expire SIX (6) MONTHS from a cause the application to become ABANDONE	N. nely filed the mailing date of this communication. (D. (35 U.S.C. § 133).			
Status						
1)⊠	Responsive to communication(s) filed on 24 O					
, —	This action is FINAL . 2b) This action is non-final.					
•	Since this application is in condition for allowance except for formal matters, prosecution as to the merits is					
	closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.					
Dispositi	on of Claims					
5)□ 6)⊠ 7)□	Claim(s) <u>40-60</u> is/are pending in the application 4a) Of the above claim(s) is/are withdraw Claim(s) is/are allowed. Claim(s) <u>40-60</u> is/are rejected. Claim(s) is/are objected to: Claim(s) is/are subject to restriction and/o	wn from consideration.				
Application Papers						
10)⊠	The specification is objected to by the Examine The drawing(s) filed on 18 July 2005 is/are: a) Applicant may not request that any objection to the Replacement drawing sheet(s) including the correct The oath or declaration is objected to by the Ex	☑ accepted or b) ☐ objected to be drawing(s) be held in abeyance. Se tion is required if the drawing(s) is ob	e 37 CFR 1.85(a). njected to. See 37 CFR 1.121(d).			
Priority u	nder 35 U.S.C. § 119					
12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No. 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received.						
2) Notic	e of References Cited (PTO-892) e of Draftsperson's Patent Drawing Review (PTO-948)	4) Interview Summary Paper No(s)/Mail D 5) Notice of Informal I	Pate			
3) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 5) Notice of Informal Patent Application 6) Other:						

DETAILED ACTION

In response to the first action, applicant cancelled all existing claims and added claims 40-60.

Response to Arguments

1. Applicant's arguments with respect to claims 40-60 have been considered but are most in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

- 2. The following is a quotation of the first paragraph of 35 U.S.C. 112:
 - The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
- 3. Claims 43, 44, 47-52, 53, 54, and 57-60 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 43 and claims 44, 53 and 54 as depended from claim 43 and claim 49, the limitation that "each of said optical polarization rectifiers contains a stack of optical retarders that rotates the polarizations of the red and the blue components while leaving the polarization state of the green component intact" is not supported by the specification as filed. The two polarization rectifiers

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described starting on page 13 describe in the first case rotation of both the green and the red/blue components (see page 13 lines 26-29, "rotates each one") and in the second case rotation of the green component and not the red/blue component (see page 14 line 24, "green-rotating").

As to claim 47 and claims 48-52 and 57-60 as depended from claim 47, the limitation that "the said color components are circularly polarized" is not supported by the specification as filed. As best understood by the examiner this limitation refers to the color components before they are operated on by the rectifier. The specification only mentions circular polarization in the context of the output of stereoscopic displays, that is the beams as viewed by the user of the display (see page 1 lines 26-30, page 4 lines 9-13, and page 9 lines 6-7).

As to claim 48 and claims 49-52 and 57-58 as depended from claim 48, the limitation that "each of said polarization rectifiers contains a ¼ wave retarder to convert the polarization states of said color components to linear polarization" is not supported by the specification as filed. The specification only mentions conversion of linear to circular polarization and only after the rectification function (see page 4 lines 9-13 and page 9 lines 6-7).

4. Claim 40 and claims 41-60 as depended from claim 1 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s)

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contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation that the polarization rectifier be made "using exclusively optical retarders" is not enabled by the specification. As best understood by the examiner, Applicant's attempt to enable the polarization rectifier using exclusively optical retarders begins on page 14 line 9 and ends on page 15 line 7, with the enablement of a key component, the green rotating filter, being provided by reference to U.S. Patent 6,310,673 to Sharp and the ColorSelect[™] filter, which is its commercial embodiment. This raises an issue since Sharp states that his filter uses "a single polarizing film followed by a stack of two or more retarders" (see abstract of U.S. Patent 6,310,673 to Sharp). Since, Applicant claims using optical retarders exclusively, the filter of Sharp is excluded from use in the invention by its use of a polarizing film in addition to the stack of retarders. Applicant does not teach how to create the green rotating filter without the use of the polarizing film as taught by ColorSelect, thus failing to meet the enablement requirement.

- 5. The following is a quotation of the second paragraph of 35 U.S.C. 112:
 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 6. Claim 42 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "the said color components are linearly

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polarized" is indefinite because one of ordinary skill in the art could not determine at which point they are linearly polarized. That is, at the output of the projector, by the rectifier, by the clean-up filters or at some other point; since the color components pass through all stages of the system.

7. Claim 47 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "the said color components are circularly polarized" is indefinite because one of ordinary skill in the art could not determine at which point they are circularly polarized. That is, at the output of the projector, by the rectifier, by the clean-up filters or at some other point; since the color components pass through all stages of the system.

Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 40-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent publication No. 2001/0028416 to *Divelbiss et al.* ("*Divelbiss*") in view of ColorLink, Inc. ColorSelectTM web page ("*ColorSelect*").

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> Note: In the following rejections the examiner uses the naming convention Divelbiss E1, Divelbiss E2 and Divelbiss E3 to distinguish between different embodiments described by Divelbiss in order to facilitate reference to the embodiments.

> As to claim 40, Divelbiss E1 discloses a prior art system using linear polarizers and in particular: a stereoscopic display apparatus comprising: first and second projectors having inputs connectable to a source of digital data (see for example Fig. 3) representing the color components of color sets of two stereoscopic images (see for example [0003]), each of said projectors having an output outputting an optical beam having a set of color components each exhibiting a randomly polarized state; a polarization preserving screen (see for example [0004]); a first optical polarization rectifier using a linear polarizer to manipulate said polarization states in said first projector in such manner that the polarization states of the different color components in said first projector are converted to a single first polarization state (see for example Fig. 3 Projector 1 linear polarizer oriented at +45degrees and [0029]); a second optical polarization rectifier using a linear polarizer to manipulate said polarization states in said second projector in such manner that the polarization states of the different color components in said second projector are converted to a single second polarization state (see for example Fig. 3 Projector 2 linear polarizer oriented at -45degrees and [0029]); said first and second single polarization states being mutually orthogonal (see for example Fig. 3 and [0029]); null; and stacking

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means for stacking said two color sets onto said polarization preserving screen such as to enable stereoscopic viewing of the two color sets via orthogonally polarized filters (see for example [0004] especially, "Both left and right perspective images are displayed in the same location on a view screen that preserves polarized light.").

Divelbiss E1 does not expressly disclose that at least one color component of each color set is of an orthogonal polarization state with respect to the other color components of the respective set; or using exclusively optical retarders in the rectifier; or polarizing clean-up filters arranged for increasing the polarization ratio of the output beams.

Divelbiss E2 discloses projectors with at least one color component of each color set being of an orthogonal polarization state with respect to the other color components of the respective set (see for example Fig. 10 and [0035]).

Divelbiss E1 and Divelbiss E2 are analogous art because they are from the same field of endeavor, which is projection displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use projectors with orthogonal color components as disclosed by *Divelbiss* E2 in the system of *Divelbiss* E1. The suggestion/motivation would have been to provide advantages such as to use an art recognized substitute or an alternate design choice.

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Divelbiss E1 as modified by Divelbiss E2 does not expressly disclose using exclusively optical retarders in the rectifier; or polarizing clean-up filters arranged for increasing the polarization ratio of the output beams.

ColorSelect discloses a color polarizer using exclusively retarders that rotates the polarization of a given color component while leaving the polarizations of the other components intact (see for example page 1, especially "Retarder stacks efficiently rotate the state of polarization of a primary color band by 90°, while the complementary color band retains the input state of polarization.").

Examiner takes official notice that it was well known in the art at the time of the invention to use a ½-wave retarder to reorient the polarization alignment of a polarized beam by 90° as evidenced by *Divelbiss* Fig. 1 and [0006]).

Divelbiss E1, Divelbiss E2 and ColorSelect are analogous art because they are from the same field of endeavor, which is projection displays.

The prior art, *Divelbiss* E1 as modified by *Divelbiss* E2, discloses a base device which differs from the claimed device by the substitution of some components, two linear polarizers, with other components, two rectifiers using exclusively retarders and one or two ½-wave retarders. As described above the substituted components and their functions were known in the art. At the time of invention, it would have been obvious to a person of ordinary skill in the art to make these substitutions, the results of which would have been predictable. The suggestion/motivation would have been to provide advantages such as to provide high light efficiency (see for example *ColorSelect* page 1).

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Divelbiss E1 as modified by Divelbiss E2 and further modified by

ColorSelect does not expressly disclose polarizing clean-up filters arranged for increasing the polarization ratio of the output beams.

Divelbiss E3 discloses polarizing clean-up filters arranged for increasing the polarization ratio of the output beams (see for example Fig. 9 and [0034] in which the touch-up polarizers are equivalent to the clean-up filters).

Divelbiss E1, Divelbiss E2, ColorSelect and Divelbiss E3 are analogous art because they are from the same field of endeavor, which is projection displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add clean-up filters as disclosed by *Divelbiss* E3 to the device after *Divelbiss* E1 as modified by *Divelbiss* E2 and further modified by *ColorSelect*. The suggestion/motivation would have been to provide advantages such as to clean up the final light output (see for example *Divelbiss* [0034]).

As to **claim 41**, in addition to the rejection of claim 40 over *Divelbiss* and *ColorSelect*, *Divelbiss* further discloses the color components are red, green and blue, and the polarization of the green component is orthogonal to the polarizations of the red and the blue components (see for example [0026]).

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As to **claim 42**, in addition to the rejection of claim 41 over *Divelbiss* and *ColorSelect*, *Divelbiss* further discloses that the said color components are linearly polarized (see for example [0026]).

As to **claim 43**, in addition to the rejection of claim 42 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that each of said optical polarization rectifiers contains a stack of optical retarders (see for example page 1, especially, "Retarder stacks") that rotates the polarizations of the red and the blue components while leaving the polarization state of the green component intact (see for example pages 1 and 2 especially, "rotate any of the additive or subtractive primary color bands").

As to **claim 44**, in addition to the rejection of claim 43 over *Divelbiss* and *ColorSelect*:

Note that the rejection of claim 40 included both a rectifier stack and an additional optical retarder in each projection path as required by claim 44.

As to **claim 53**, in addition to the rejection of claim 44 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that said first and second polarization states are linear (see for example page 1, especially "Input Illumination: Linearly Polarized" the rotation of one of the color components by 90degrees by the ColorSelect filter maintains linear polarization and the ½-wave retarders added to

rotate the polarization into first and second states maintain the linear polarization.)

As to **claim 54**, in addition to the rejection of claim 44 over *Divelbiss* and *ColorSelect*:

Divelbiss and ColorSelect do not expressly disclose that the first and second polarization states are circular.

Examiner takes official notice that circular polarization of right and left handed, i.e. orthogonal, varieties; their correspondence in function to 90degree orthogonal linear polarizations; and the conversion of linear to circular polarization through the use of 1/4-wave retarders was well known to those skilled in the art at the time of the invention. Both linear and circular polarization are special cases of elliptical polarization and all have their mathematical treatment based in Maxwell's equations.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize 1/4-wave retarders to produce orthogonal circular polarizations of the two beams. Such a conversion was well known in the art and within the capability of one skilled in the art. The suggestion/motivation would be to provide advantages such as to make the system useable with circularly polarized viewer spectacles, which were art recognized substitutes for linearly polarized viewer spectacles.

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As to **claim 45**, in addition to the rejection of claim 42 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that each of said optical polarization rectifiers contains a stack of optical retarders (see for example page 1, especially, "Retarder stacks") that rotates the polarization of the green component while leaving the polarization state of the red and the blue components intact (see for example pages 1 and 2 especially, "rotate any of the additive or subtractive primary color bands").

As to **claim 46**, in addition to the rejection of claim 45 over *Divelbiss* and *ColorSelect*:

Note that the rejection of claim 40 included both a rectifier stack and an additional optical retarder in each projection path as required by claim 46.

As to **claim 55**, in addition to the rejection of claim 46 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that said first and second polarization states are linear (see for example page 1, especially "Input Illumination: Linearly Polarized" the rotation of one of the color components by 90degrees by the ColorSelect filter maintains linear polarization and the ½-wave retarders added to rotate the polarization into first and second states maintain the linear polarization.)

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As to **claim 56**, in addition to the rejection of claim 46 over *Divelbiss* and *ColorSelect*:

Divelbiss and ColorSelect do not expressly disclose that the first and second polarization states are circular.

Examiner takes official notice that circular polarization of right and left handed, i.e. orthogonal, varieties; their correspondence in function to 90degree orthogonal linear polarizations; and the conversion of linear to circular polarization through the use of 1/4-wave retarders was well known to those skilled in the art at the time of the invention. Both linear and circular polarization are special cases of elliptical polarization and all have their mathematical treatment based in Maxwell's equations.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize 1/4-wave retarders to produce orthogonal circular polarizations of the two beams. Such a conversion was well known in the art and within the capability of one skilled in the art. The suggestion/motivation would be to provide advantages such as to make the system useable with circularly polarized viewer spectacles, which were art recognized substitutes for linearly polarized viewer spectacles.

As to **claim 47**, in addition to the rejection of claim 41 over *Divelbiss* and *ColorSelect*:

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Divelbiss and *ColorSelect* do not expressly disclose that the said color components are circularly polarized.

Examiner takes official notice that circular polarization of right and left handed, i.e. orthogonal, varieties; their correspondence in function to 90degree orthogonal linear polarizations; and the conversion of linear to circular polarization through the use of 1/4-wave retarders was well known to those skilled in the art at the time of the invention. Both linear and circular polarization are special cases of elliptical polarization and all have their mathematical treatment based in Maxwell's equations.

Examiner takes official notice that projectors with circular polarization were well known to those skilled in the art at the time of the invention as evidenced by U.S. Patent No. 6,819,365 to Peng column 6 lines 5-7.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize projectors with circular polarization as the projectors of the device after *Divelbiss* and *ColorSelect* and to utilize 1/4-wave retarders to produce linear polarization of the beams as required for use of the ColorSelect filters. Such a conversion was well known in the art and within the capability of one skilled in the art. The suggestion/motivation would be to provide advantages such as to make the system useable with projectors that produced circularly polarized output beams.

As to **claim 48**, in addition to the rejection of claim 41 over *Divelbiss* and *ColorSelect*:

The rejection of claim 48 already covered the limitation that each of said polarization rectifiers contains a ¼ wave retarder to convert the polarization states of said color components to linear polarization.

As to **claim 49**, in addition to the rejection of claim 48 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that each of said optical polarization rectifiers contains a stack of optical retarders (see for example page 1, especially, "Retarder stacks") that rotates the polarizations of the red and the blue components while leaving the polarization state of the green component intact (see for example pages 1 and 2 especially, "rotate any of the additive or subtractive primary color bands").

As to **claim 50**, in addition to the rejection of claim 49 over *Divelbiss* and *ColorSelect*:

Note that the rejection of claim 40 included both a rectifier stack and an additional optical retarder in each projection path as required by claim 44.

As to **claim 57**, in addition to the rejection of claim 50 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that said first and second polarization states are linear (see for example page 1, especially "Input Illumination: Linearly

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Polarized" the rotation of one of the color components by 90degrees by the ColorSelect filter maintains linear polarization and the ½-wave retarders added to rotate the polarization into first and second states maintain the linear polarization.)

As to **claim 58**, in addition to the rejection of claim 50 over *Divelbiss* and *ColorSelect*:

Divelbiss and ColorSelect do not expressly disclose that the first and second polarization states are circular.

Examiner takes official notice that circular polarization of right and left handed, i.e. orthogonal, varieties; their correspondence in function to 90degree orthogonal linear polarizations; and the conversion of linear to circular polarization through the use of 1/4-wave retarders was well known to those skilled in the art at the time of the invention. Both linear and circular polarization are special cases of elliptical polarization and all have their mathematical treatment based in Maxwell's equations.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize 1/4-wave retarders to produce orthogonal circular polarizations of the two beams. Such a conversion was well known in the art and within the capability of one skilled in the art. The suggestion/motivation would be to provide advantages such as to make the system useable with circularly

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polarized viewer spectacles, which were art recognized substitutes for linearly polarized viewer spectacles.

As to **claim 51**, in addition to the rejection of claim 47 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that each of said optical polarization rectifiers contains a stack of optical retarders (see for example page 1, especially, "Retarder stacks") that rotates the polarization of the green component while leaving the polarization state of the red and the blue components intact (see for example pages 1 and 2 especially, "rotate any of the additive or subtractive primary color bands").

As to **claim 52**, in addition to the rejection of claim 51 over *Divelbiss* and *ColorSelect*:

Note that the rejection of claim 40 included both a rectifier stack and an additional optical retarder in each projection path as required by claim 46.

As to **claim 59**, in addition to the rejection of claim 52 over *Divelbiss* and *ColorSelect*, *ColorSelect* further discloses that said first and second polarization states are linear (see for example page 1, especially "Input Illumination: Linearly Polarized" the rotation of one of the color components by 90degrees by the ColorSelect filter maintains linear polarization and the ½-wave retarders added to

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rotate the polarization into first and second states maintain the linear polarization.)

As to **claim 60**, in addition to the rejection of claim 52 over *Divelbiss* and *ColorSelect*:

Divelbiss and ColorSelect do not expressly disclose that the first and second polarization states are circular.

Examiner takes official notice that circular polarization of right and left handed, i.e. orthogonal, varieties; their correspondence in function to 90degree orthogonal linear polarizations; and the conversion of linear to circular polarization through the use of 1/4-wave retarders was well known to those skilled in the art at the time of the invention. Both linear and circular polarization are special cases of elliptical polarization and all have their mathematical treatment based in Maxwell's equations.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize 1/4-wave retarders to produce orthogonal circular polarizations of the two beams. Such a conversion was well known in the art and within the capability of one skilled in the art. The suggestion/motivation would be to provide advantages such as to make the system useable with circularly polarized viewer spectacles, which were art recognized substitutes for linearly polarized viewer spectacles.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Rainey whose telephone number is (571) 270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/

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